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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/650,208 | 08/28/2003 | Andrew W. Phillips | GP-302782 | 7158 |

7590 02/17/2010
CHRISTOPHER DEVRIES
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| EXAMINER |
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NGUYEN, XUAN LAN T

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| ART UNIT | PAPER NUMBER |
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3657

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02/17/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/650,208 | PHILLIPS ET AL. | |
| | Examiner | Art Unit | |
| | Lan Nguyen | 3657 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,9,10,12-14,19-21,32-34 and 36-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,9,10,12-14,19-21,32-34 and 36-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/29/10 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 10, 12-14, 19 and 38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Re: claims 10 and 12-14, the step of "determining a loop time of a thermal model of said friction device" is not found in the specification as originally filed.

Re: claim 38, the units of joules per degree Celsius and watts per degree Celsius are not found in the specification as originally filed.

4. Claims 1, 3-6, 9, 10, 12-14, 19-21, 32-34 and 36-40 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

- The claimed features of “thermal inertia, heat rate, heat rejection, loop time and thermal energy” are not explained in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.
- The formula for the claimed value in claims 34, 36 and 39 do not make sense since the thermal model as shown in page 7 shows that the temperature is derived from the values of heat rate and heat rejection divided by thermal inertia while the same thermal model is shown to be heat rate divided by heat rejection. There is inconsistency in the showing of the thermal model in page 7 and 8.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-6, 9, 10, 12-14, 19-21, 32, 37, 38 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Benford (5319963).

Re: claim 1, Benford shows a cooling system, as in the present invention, comprising: a flow control device, a pump, column 4, line 38; a controller, not shown in the figures but is inherent for the control method to work properly; said controller estimates at least one temperature in step 24 as claimed; a flow command is shown in step 24; determination of heat rejection and thermal inertia are shown in steps 26a and 12, respectively.

Re: claim 3-6 and 9, Benford further shows the determinations are based on torque and slip speed in column 1, lines 30-48; a sump with sump temperature in column 4, lines 30-40; flow command in step 24 wherein calculation of the flow command is shown in column 6, line 54 to column 7, line 25; and thermal energy is shown in step 12.

Re: claims 37 and 38, Benford further shows the heat rejection and thermal inertia as claimed.

Re: claim 10, Benford shows a method of controlling a cooling, as in the present invention, comprising: estimating a temperature state of a friction device in the Abstract; determining a loop time in column 5, lines 50-65; calculating a flow command and controlling the fluid in column 6, line 54 to column 7, line 25; and the temperature state is based on said loop time in column 5, lines 50-65.

Re: claims 12-14 and 19, Benford further shows the determinations are based on torque and slip speed in column 1, lines 30-48; a sump with sump temperature in

column 4, lines 30-40; flow command in step 24 wherein calculation of the flow command is shown in column 6, line 54 to column 7, line 25; and thermal energy is shown in step 12.

Re: claim 20, Benford shows a method of controlling a cooling, as in the present invention, comprising: calculating a heat rate in step 14; estimating a temperature based on heat rate in step 22; determining the flow command in column 6, line 54 to column 7, line 25; determining a value as claimed with the thermal model shown in column 5, line 55; operating the pump, column 4, line 38; and said thermal model functions as a low pass filter to track said value.

Re: claims 21 and 32, Benford further shows the determinations of torque and slip speed in column 1, lines 30-48; and the loop time in column 5, lines 50-65.

Re: claim 40, Benford further shows the determinations of heat rate in step 14, heat rejection in step 26a; sump temperature in step 22 and a value by the thermal model in column 5, line 55.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 33, 34, 36 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benford (5319963).

Claim 33 claims a thermal model as a formula comprising the derivation of temperature from thermal inertia, heat rate, heat rejection and the difference in the temperatures. Benford does not show an exact formula as claimed. However, Benford's formula as shown in column 5, line 55 include the use of thermal inertia, heat flow for several components of the cooling system and the temperature derivative. Although the claimed formula and Benford's formula do not look the same, the essential components in the formulas are the same such as derivative of temperature, heat flow, heat rate, heat rejection and thermal inertia. It would have been obvious to one of ordinary skill in the art to have modified the formula of Benford to calculate for temperature in a cooling system wherein a certain requirements need to be met in the new cooling system; however, the basic necessary components such as derivative of temperature, heat flow, heat rate, heat rejection and thermal inertia to calculate for temperature in a cooling system have been taught by Benford.

Re: claims 34 and 36, Benford shows a cooling system, as in the present invention, comprising: a flow control device, a pump, column 4, line 38; a controller, not shown in the figures but is inherent for the control method to work properly; said controller estimates at least one temperature in step 24 as claimed; a flow command is shown in step 24; determination of heat rejection and thermal inertia are shown in steps 26a and 12, respectively. Benford does not show an exact formula as claimed. However, Benford's formula as shown in column 5, line 55 include the use of sump temperature, heat rate and heat rejection. Although the claimed formula and Benford's formula do not look the same, the essential components in the formulas are the same

such as sump temperature, heat rate and heat rejection. It would have been obvious to one of ordinary skill in the art to have modified the formula of Benford to calculate for a value to be used in a cooling system wherein a certain requirements need to be met; however, the basic necessary components such as sump temperature, heat rate and heat rejection to calculate for the value the be used in a cooling system have been taught by Benford.

Claim 39 claims a thermal model as a formula comprising sump temperature, heat rate and heat rejection. Benford does not show an exact formula as claimed. However, Benford's formula as shown in column 5, line 55 include the use of sump temperature, heat rate and heat rejection. Although the claimed formula and Benford's formula do not look the same, the essential components in the formulas are the same such as sump temperature, heat rate and heat rejection. It would have been obvious to one of ordinary skill in the art to have modified the formula of Benford to calculate for a value to be used in a cooling system wherein a certain requirements need to be met; however, the basic necessary components such as sump temperature, heat rate and heat rejection to calculate for the value the be used in a cooling system have been taught by Benford.

Response to Arguments

9. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's arguments with respect to the claimed features "heat rejection, thermal inertia and loop time" have been considered. Applicant argues that these features are well known and well understood and are fully supported by the specification. However, as stated previously and as stated in the new non-enablement rejection above, these features have not been explained in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In fact, these features have not been explained at all in the specification as originally filed. A search in the patent system for the feature "thermal inertia" yields the patent to Benford wherein Benford defines thermal inertia as BTU/degree F, which is different than Applicant's units of J/degree C, but is considered to be the equivalents between the two English and SI units. Benford also shows "heat rejection" as BTU/hr. Another search in the patent system for the feature "heat rejection" yields the patent to Kinerson et al. wherein Kinerson defines heat rejection as BTU/min, which is consistent with the units of Benford. Both Benford and Kinerson define heat rejection to be different than Applicant's units of W/degree C. It is concluded that Applicant fails to provide supports from the specification and creditable evidence in their arguments about "heat rejection" and "thermal inertia". Applicant further argues that the loop time is the time to perform an iteration of multiple tasks such as the time to complete the four tasks as shown in figure 2 of the instant application. Paragraph [0027] of the specification shows that delta T is loop time of the thermal model; wherein the thermal model is provided as the formula in paragraph

[0027]. Therefore, it is concluded that Applicant's argument that loop time is the time to complete the four tasks in figure 2 is without support from the specification.

Remarks

11. Maguire et al. is cited to remind Applicant to keep a clear demarcation between claimed inventions.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Nguyen whose telephone number is (571) 272-7121. The examiner can normally be reached on Monday through Friday, 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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/Xuan Lan Nguyen/
Primary Examiner
Art Unit 3657